## Software Design Phase

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## **Functional Requirements:**

ID	Functional Requirement	Input	Output	Priority
	Description			

- 1.1
- · Customers can sign up using basic credentials (email and password) to create a new account.
- . The sign-up form for the user will contain the following fields:
  - o user email
  - password
    - the user email should be in the following format ([username]@[domain] ) and have a minimum length of 6 characters and max length of 40 characters.
    - the password should have minimum length of 8 characters and maximum length of 20 characters and consists of the following:
      - English letters (uppercase and lowercase): A-Z, a-z
      - Numbers: 0-9
      - · Symbols: Some of the symbols (! @ # \$ % ^ & \* () \_ + - {} []|\:;"'<>,.?/)
    - If there's any incorrect format in either of the two fields, the user will receive a notification through a red error message displayed around the field containing the error on the frontend form. In such cases, the data cannot be submitted to the backend.
- · At the end of the form there is 3 buttons:
  - Sign up:
    - to send this data to the backend to complete the sign-up process.

email and password

- · In case of successful sign up:
  - o send a verification email to the user with a link to navigate to home page when clicking.
  - o notify the user to open the sent verification email.
  - · In case of failure sign up (ex: user already exist):
    - o notify the user with the failure response to try sign up again with valid info.

HIGH

<ul><li>Sign-up using Gmail:</li></ul>
<ul><li>to redirect the</li></ul>
customer to Google's
authenticator service.
Already have an
account? login.
<ul><li>to navigate to the login</li></ul>
form

1.2	Customers can sign up using     Gmail to create a new	user Gmail	In case of successful sign up:	HIGH
	account.  • The same sign-up form in <b>1.1</b> .		<ul> <li>notify the user with the successful sign</li> </ul>	
			up and navigate to the home page	
			<ul> <li>In case of failure sign up (ex: user already exist):</li> </ul>	
			<ul> <li>notify the user</li> <li>with the failure</li> </ul>	
			response to try sign up again with valid info.	
2	Users can log in to their account using basic	(email and password) or user Gmail.	In case of     successful log in:	HIGH
	credentials (email and password) or Gmail.  The sign-in form for the user		<ul> <li>notify the user</li> <li>with the</li> <li>successful log in</li> </ul>	
	will contain the following fields:		and navigate to the home page.	
	o user email		• In case of failure	
	o password		log in (ex: user not	
	<ul><li>the user email should be in the following</li></ul>		found or incorrect password):	
	format ([username]@[domain]		<ul> <li>notify the user</li> <li>with the failure</li> </ul>	
	) and have a minimum		response to try	
	length of 6 characters and max length of 40 characters.		log in again with valid info.	
	<ul> <li>the password should have minimum length</li> </ul>			
	of 8 characters and maximum length of 20 characters and			
	consists of the following:			
	<ul> <li>English letters (uppercase and lowercase): A-Z, a-z</li> </ul>			
	Numbers: 0-9			
	Symbols: Some of			
	the symbols (! @ # \$ % ^ & * ( ) _ + - { }			
	[] \:;"'<>,.?/)			
	<ul> <li>If there's any incorrect</li> <li>format in either of the</li> </ul>			
	format in either of the			

two fields, the user will receive a notification through a red error message displayed around the field containing the error on the frontend form. In such cases, the data cannot be submitted to the backend.

### At the end of the form there is 3 buttons:

- Sign in:
  - to send this data to the backend to complete the sign-in process.
- Sign-in using Gmail:
  - to redirect the customer to Google's authenticator service.
- Don't have an account? Sign Up.
  - to navigate to the SignUp form

	CUSTOMERS			
1	Customers can browse through the app's catalog to discover products in various categories.	navigate to product list page.	The products list which is divided into pages.  Each page contains certain number of products.  The product is displayed in a card with main image in the center, rate of 5 stars under it, the product name, product price, two buttons: add to cart, add to whish list.  display product's old price crossed over when there is an offer applied to it, and display the new price.	HIGH
2	Customers can view detailed information about products, including images, descriptions, prices, and customer reviews.	Click on a specific product in the product listing.	A product page appears, in which the customer can view an image, a comprehensive description, a price, and customers' reviews.  The information mentioned are viewed in fields aligned to the left one under the other, except the image that will be centered.  The customer's reviews section contains the product rating out of 5, centered. Below lies the customers reviews (newest first), described by the customer's name, aligned to the left, and the review text underneath, aligned to the left.	HIGH
3	The system is required to provide customers with a seamless and efficient shopping cart experience	Product Listings:     Description: A list     of available	Cart Summary:     Description: A     detailed	HIGH

on the E-commerce website. This involves facilitating the addition of products to the cart, providing intuitive controls, and presenting comprehensive information for enhanced user satisfaction.

#### **Key Features:**

#### 1. Add to Cart Functionality:

- A prominently displayed 'Add to Cart' button for each product in the product listings.
- Default quantity in the cart set to one for each product added.

#### 2. Cart Icon in Main Menu:

- Inclusion of a visually appealing cart icon in the main menu.
- Dynamic representation of the current quantity of products in the cart through the cart icon.

#### 3. Cart Summary Page:

- Upon clicking the cart icon, the system should direct the user to a dedicated web page.
- The page should present a detailed summary of items in the cart, including product image, name, description, quantity, and price for each item.

#### 4. Subtotal Display:

 Display the subtotal for the entire cart prominently on the cart summary page.

### 5. Quantity Modification Interface:

- A user-friendly interface allowing modification of the quantity for each product.
- The interface should include a text box showing the current quantity, an 'Update' button, and the option to input any desired quantity (including zero for removal).

products on the E-commerce website.

#### 2. User Interactions:

#### • Description:

Actions performed by the user, including clicks on 'Add to Cart,' 'Update,' 'Delete,' 'Save for Later,' and 'Place Order.'

## 3. Quantity Modifications:

# • **Description:** Input from the user

from the user specifying the desired quantity of a product in the cart.

#### 4. Order Placement:

 Description: Input from the user indicating the intention to place an order for the items in the cart, by clicking the "Place

order " button

- summary of items in the shopping cart.
- Format: Web
   page displaying
   product image,
   name,
   description,
   quantity, and
   price for each
   item.

#### 2. Subtotal Display:

#### Description:

The total cost of items in the shopping cart.

#### • Format:

Numeric value representing the subtotal.

#### 3. Wishlist

#### Transition:

### Description:

Transition of a product from the cart to the customer's Wishlist.

#### • Format:

Updated Wishlist records.

#### 4. Order Details:

#### Description:

Detailed information about the placed order.

### • Format:

Accessible in the 'Orders' section of the customer's account, including items, quantities, and total cost.

# 5. User Interface Updates:

### Description:

Visual updates on the website interface, such

# 6. Product Removal and Wishlist Transition:

- A 'Delete' button for prompt removal of a product from the cart.
- A 'Save for Later' option to transition the product to the customer's Wishlist.
- Dynamic updating of the subtotal upon any modifications.

#### 7. Place Order Functionality:

- Inclusion of a 'Place Order' button to facilitate the purchase of all items in the cart.
- Upon order placement, the cart should be emptied.

### 8. Order Details Accessibility:

 Accessibility of order details in the 'Orders' section of the customer's account.

- as changes to the cart icon quantity, dynamic updates of the quantity modification interface, and any notifications of successful or unsuccessful actions.
- Format: Realtime updates on the front-end interface based on user interactions.

4	Customers can search/filter through listed items according to product/category.	criteria to filter by and text to filter (or search).	the filtered products list.	MEDIUM
5	Customers can sort the products in specific category (categories) according to some criteria (price, name, most popular, date).	criteria to sort by and asc/desc order.	the sorted products list.	MEDIUM
6	Customers can manage their user accounts, which may include personal information, shipping addresses.	Click on their profile icon on the top right of any page.	A profile page appears, in which the customer can view or update (using a button next to each field) their first and last name, phone number, email address, and list of registered addresses.  The customer can also add or delete to the list of addresses using similar buttons next to each address.  Each field must abide the following set of constraints:  Names: min: 1, max: 20 characters, letters and numbers only.  Email Address: in the form: user@org.domain: user: letters, numbers, and standard symbols only (min: 1, max: 20), org: letters and numbers only (min: 1, max: 10), domain: letters and numbers only (min: 2, max: 6)  Phone Number: min: 5, max: 20 characters, numbers only.  Addresses: min: 6, max: 50 characters, letters and numbers only.	LOW
7	The system should provide users with a seamless and interactive product review feature on the E-	User Interaction:     Description:     Actions performed	Integrated Review:     Description:     The user's	LOW

commerce platform, allowing them to express opinions on products with clarity and precision.

#### **Key Features:**

# 1. Review Button on Product Page:

- A prominently displayed 'Review this product' button on each product page.
- Accessible interface to initiate the review process.

#### 2. Review Interface:

- Upon clicking the 'Review this product' button, the system should reveal a user-friendly interface.
- The interface should facilitate both star rating and textual commentary.

### 3. Star Rating Functionality:

- An interface featuring five initially white stars.
- Dynamically changing star colors based on user interaction, providing a visual representation of the rating.
- For example, clicking the 3rd star should result in the first three stars being colored in gold, indicating a three out of five rating.

#### 4. Textual Comment Input:

 An 'Add a comment' button that prompts a text input field for users to articulate their thoughts concisely.

#### 5. Review Confirmation:

- After confirming the review, the system should seamlessly integrate the feedback into the product's reviews section.
- The integration should include both the star rating and the accompanying textual comment.
- 6. Comprehensive Overview:

by the user, including clicks on the 'Review this product' button and interactions with the star rating and textual comment input fields.

 Format: Captured through the website's front-end interface, indicating the user's desire to provide a product review.

# 2. Star Rating Selection:

- Description: User input for selecting the star rating.
- Format: Interaction
   with the star icons
   on the review
   interface, indicating
   the desired rating
   (e.g., 3 out of 5
   stars).

# 3. Textual Comment Input:

- Description: Input from the user providing a textual comment about the product.
- Format: Text
   entered into the
   comment input field
   by the user.

### 4. Review Confirmation:

- Description: User confirmation of the review before submission.
- Format: Click on a confirmation button or a similar mechanism indicating the finalization of the review.

feedback seamlessly integrated into the product's reviews section.

Format:
 Updated records
 in the product's
 reviews
 database or API
 response
 confirming
 successful
 integration.

# 2. Star Rating Display:

#### Description:

- Display of the user's star rating on the product page and in the product's reviews section.
- Format: Visual representation of stars, dynamically colored based on the user's selection.

# 3. Textual Comment Display:

- Description:
   Display of the user's textual comment in the product's reviews section.
- Format: Textual content presented in the reviews interface, providing additional insights.

### 4. Comprehensive

#### Overview:

 Description: An overview of the user's review, including both

- The integrated review should provide a comprehensive overview for other users considering the product.
- Details such as the user's star rating and textual comment should be prominently displayed in the product's reviews section.

the star rating and the textual comment.

#### o Format:

Displayed in the product's reviews section, providing potential buyers with valuable information.

# 5. User Interface Updates:

### • Description:

Visual updates on the website interface, such as changes to the star rating interface, confirmation messages, and any notifications of successful or unsuccessful review submissions.

 Format: Realtime updates on the front-end interface based on user interactions and system responses. The system should provide users with the ability to curate a personalized Wishlist on the E-commerce platform, offering a seamless and efficient means to bookmark and manage products of interest. This feature aims to enhance the user's shopping experience by providing freedom in product organization and easy transition to the shopping cart.

#### **Key Features:**

# 1. Wishlist Icon on Product Listings:

- Each product listing shall include a distinctive white heart icon.
- Upon user interaction by clicking the heart icon, it transforms to red, signifying the successful addition of the corresponding product to the user's Wishlist.

#### 2. Wishlist Counter in Top Bar:

- The top bar shall display a counter dynamically reflecting the quantity of products currently residing in the user's Wishlist.
- The counter shall be prominently positioned atop the heart icon.

# 3. Wishlist Access via Top Bar:

 Clicking the heart icon in the top bar shall redirect the user to a dedicated web page, providing quick access to the Wishlist.

### 4. Wishlist Overview Page:

- The Wishlist web page shall present a comprehensive overview of bookmarked products.
- Information displayed for each product shall include product image, name, description, and price.

# 5. Product Removal from Wishlist:

#### 1. User Interaction:

- Description:
- Actions performed by the user, specifically clicks on the heart icon to add or remove products from the Wishlist.
- Format: Captured through the website's front-end interface, indicating user preferences.

## 2. Click on Wishlist Icon:

- Description: User interaction with the heart icon in the top bar to access the dedicated Wishlist web page.
- Format: Captured through the website's front-end interface, triggering a redirection action.

## 3. Click on 'Delete' Button:

- Description: User interaction with the 'Delete' button on the Wishlist web page to remove a product.
- Format: Captured through the website's front-end interface, triggering a removal action.

# 4. Click on 'Add to Cart' Button:

- Description: User interaction with the 'Add to Cart' button on the Wishlist web page to transition selected items to the shopping cart.
- Format: Captured through the

### 1. Visual Feedback -Heart Icon:

HIGH

- Description:
   Visual feedback
   on the heart
   icon, dynamically
   changing its
   color (from white
   to red) upon
   successfully
   adding a product
   to the Wishlist.
- Format: Realtime visual changes captured through the website's front-end interface.

# 2. Counter Display in Top Bar:

- Description:

   The counter
   dynamically
   reflecting the
   quantity of
   products in the
   user's Wishlist,
   prominently
   displayed atop
   the heart icon.
- Format:
   Numeric value
   displayed in real-time through the
   website's front-end interface.

# 3. Redirection to Wishlist Page:

Description:
 Redirecting the user to the dedicated
 Wishlist web page upon clicking the heart icon in the top bar.

 Format:
 Website's frontend interface  The Wishlist web page shall feature a 'Delete' button, symbolized by a garbage pin icon, allowing users to promptly remove any product from their Wishlist.

#### 6. Add to Cart from Wishlist:

- An 'Add to Cart' button, adorned with a cart icon, shall be available on the Wishlist web page.
- Clicking this button shall enable users to seamlessly transition selected items from the Wishlist to their shopping cart.

website's front-end interface, initiating a seamless transition. initiating a redirection action.

# 4. Overview of Wishlist Page:

Description:
 Presentation of a comprehensive overview of products in the Wishlist, including product image, name, description, and

# price.Format:

Displayed on the Wishlist web page, providing valuable information for user reference.

#### 5. Visual Feedback -

#### 'Delete' Button:

#### Description:

Visual feedback on the 'Delete' button, indicating the successful removal of a product from the Wishlist.

 Format: Realtime visual changes captured through the website's front-end interface.

#### 6. Seamless

### **Transition to Cart:**

#### Description:

Visual feedback and real-time updates on the website interface, indicating the successful transition of selected items from the Wishlist

to the shopping cart.
Format: Real-
time visual
changes
captured through
the website's
front-end
interface.

9	Customer tracks/manages orders by:  Order Status:  Display the current status of the order, such as "Processing", "Cancelled," or "Delivered."  Orders details:  Order's ordering date  Provide customers with an estimated delivery date.  Order quantity.  Order price.  Products in the order.  shipping address  Status Updates:  If the order status changes (from "Processing" to "Delivered").  Management:  reorder specific order  request order cancellation	<ul> <li>navigate to my orders page.</li> <li>Preview the different order types.</li> <li>Click on specific order</li> <li>Request for cancelling order by clicking on cancel button</li> <li>Request for reordering order by clicking on reorder.</li> </ul>	View the orders and their status.  Show "Cancelled (un)successfully" message when user click on cancel button.  Show reordered (un)successfully message when user click on reorder button.	LOW
10	Customers can review their order history to keep track of past purchases.	open the order history menu.	A list of orders divided int pages. Each page has a certain number of orders with back and next buttons to navigate between different pages. Each order in the list has this information: order ID, date created, total cost, status (pending, shipped, delivered, cancelled).      opening certain order opens a page containing all products purchased in the order. The product purchased is displayed along with its price and number of items ordered.	LOW

	ADMINS (VENDORS)			
1	Vendors should be able to list their products for sale on the platform, providing customers with comprehensive information about the products. This is done by the addition of product descriptions, images, pricing, and other relevant details.  Product Information:  • Vendors input essential details about the product, including the product name, category, and a detailed description.  Images:  • Vendors upload high-quality images of the product  Pricing:  • Vendors set the price for the product.  Quantity:  • Vendors can set the available amount of each product	<ul> <li>the vendor opens the products catalog by signing into the app.</li> <li>click add new product button.</li> <li>vendor can write the product category, product name and description with a field assigned to each of these information.</li> <li>upload button to upload image for product.</li> <li>Setting the price by using slider/text.</li> <li>Setting the product quantity by using slider/text.</li> </ul>	return the products list.  successful response update the products list.	HIGH
2	Vendors can edit product listings, update product details, and remove products from the app.	Select a specific product and modify its details. Select a specific product to remove	A product page appears, in which the admin can view the product information mentioned before.  Each field will have an "Update" button next to it that allows the admin to update that field.  On the top right corner of the product update page, a "Delete Product" button with red text is present. Clicking the button pops up a confirmation window in the middle of the screen. Confirming the deletion will remove the products listing.	HIGH
3	Vendors require a dashboard that facilitates efficient management	open the dash board menu.	returns the orders list when clicking on	HIGH

and monitoring of orders. This dashboard should provide a comprehensive overview of orders, including their status, and allow vendors to update or cancel orders directly from the dashboard

### This can be done by:

- The dashboard through a dedicated button in their

  menu.
- Preview the orders and their statuses.
- Selects specific order.
- then cancel/update the order.

- select a specific order by clicking on it
- update info by clicking on update button.
- Cancel order by clicking on cancel button.
- dashboard button.
- successful/fail message and
- if successful update the orders list otherwise showing a message representing the reason why the process failed.

4	Vendors can search, filter and sort their products list according to certain category.	enters criteria to filter by and text to filter (or search). enters the sort by criteria and asc/desc order.	return the filtered/ sorted list.return the filtered/ sorted list.	MEDIUM
5	Root admin can send invitation for someone to be an admin.	add the admin email in the add admin form.	<ul> <li>successful/fail response.</li> <li>an invitation email sent to the specified email address.</li> </ul>	MEDIUM
6	Vendors can manage their seller profile and contact information.	Click on their profile icon on the top right of any page.	A profile page appears, in which the admin can view or update (using a button next to each field) their first and last name, work phone number, work email address, and work address.  Each field must abide the same set of constraints as in the customer profile page.	MEDIUM
7	Vendors can apply an offer over a product.  (I think it would be better to combine with product edit)	select a specific product and enters the discount value.	success/fail update the product price.	LOW
	SYSTEM			
1	System should provide product recommendations based on the offers and bestsellers.	-	return the products list filtered by bestsellers/ offers.	MEDIUM
2	The system shall enable customers to seamlessly access vendor contact information on the E-commerce platform, providing a streamlined process for effective communication with vendors and administrators. This functionality aims to foster userfriendly communication, emphasizing responsiveness to inquiries and support requests.  Key Features:  1. 'Contact' Button in Top Bar:	1. User Interaction:  Description: Customer interaction with the 'Contact' button in the top bar.  Format: Captured through the website's front-end interface, initiating the process.  2. Click on 'Contact' Button:	1. Redirect to  Dedicated Web  Page:  Description:  The system shall redirect the user to a dedicated web page.  Format:  Website's frontend interface initiating a redirection	VERY
	<ul> <li>The system shall feature a</li> </ul>	<ul> <li>Description: User</li> </ul>	action.	

- 'Contact' button in the top bar.
- Format: Visual element accessible through the website's front-end interface.

# 2. Access to Dedicated Web Page:

- Upon clicking the 'Contact' button, the system shall direct the customer to a dedicated web page.
- Format: Redirect action captured through the website's front-end interface.

### 3. Display of Contact Details:

- The dedicated web page shall provide essential contact details for effective communication.
- Details include the phone number of a designated vendor, a dedicated hotline for urgent matters, and an email address for communication with administrators.

### 4. Hotline Emphasis for Urgent Concerns:

- The inclusion of a dedicated hotline emphasizes responsiveness to urgent customer concerns.
- Format: Highlighted visual representation on the dedicated web page.

### 5. Comprehensive Email

#### Communication:

- An email address shall be provided on the dedicated web page for communication with platform administrators.
- This ensures a comprehensive channel for reaching out regarding various inquiries and support requests.

- clicking the 'Contact' button.
- Format: Captured through the website's front-end interface, triggering a redirection action.

# 2. Display of Contact Details:

- Description:
   The dedicated
   web page shall
   display essential
   contact details.
- Format:

   Information
   presented on the
   web page,
   including the
   phone number of
   a designated
   vendor, a hotline
   for urgent
   matters, and an
   email address
   for
   administrators.

# 3. Visual Emphasis on Hotline:

Description:
 Visual
 representation
 emphasizing the dedicated hotline for urgent

Format:
 Highlighted
 visual element
 on the dedicated
 web page.

concerns.

# 4. Email Address Display:

#### Description:

The email address for communication with administrators shall be displayed on the dedicated web page.

Format:

 Information
 presented on the
 web page,
 providing a
 comprehensive

channel for reaching out regarding inquiries and support	
support	
requests.	

### **Non-Functional Requirements:**

ID	Non-Functional Requirement Description	Priority
1	<b>Extensibility</b> : Ability to extend new features to the system with the already existing features.	HIGH
2	<b>Usability</b> : The application will be usable and that's by creating a user-friendly interface which is intuitive/easy to use.	HIGH
3	<b>Responsive Web Design</b> : The website should be responsive and accessible on both desktop and mobile devices.	LOW

### **System Main Components:**

System Components.pdf

### **Use Case Diagram:**

△ Use Case Diagram.pdf

### **Interaction Diagrams for the Main Functionalities:**

Customer sequence diagram.pdf

▲ Admin\_Sequence\_diagram.pdf

### **Detailed Class Diagram:**

▲ E-commerce class diagram.pdf

### **ERD**:

△ ER Diagram.pdf

### **CRC Cards:**

△ CRC cards.pdf

### Scheduling of the features delivered in each milestone:

Milestone	Features
Milestone 1	project setup, user(1, 2)

Milestone 2	customer(1, 2, 3, 6, 8)
	admin(1, 2, 3, 6)
Milestone 3	customer(4, 5, 7, 9, 10)
	admin(4, 5, 7)
	system(1, 2)